What is Effluent Trading?

- A source facing higher pollution reduction costs compensates another source for achieving equivalent, less costly reductions.
  - Market-based tool to solve water quality problems (assist in implementation of TMDLs)
  - Voluntary, flexible, stimulates innovation
  - Cost-effective pollution reduction
  - Operates within existing programs

Why Pollutant Trading?

- Certain communities face:
  - Fixed pollutant load limits;
  - Need to reduce pollutant loadings to watersheds;
  - Shared assimilative capacity; and
  - Increasing costs to meet load limits.
- Pollutant trading may be a cost-effective tool to meet water quality objectives.

Why Pollutant Trading: Point Source Perspective

- For point sources:
  - Costs often incurred in large increments
  - Need for reductions evolves in smaller increments
- Pollutant trading allows point sources to:
  - Delay technology investments - ‘optimal’ time
  - Purchase the exact amount - reduction needed
  - Obtain reductions at lowest overall cost
- Point sources also have incentive to achieve additional pollutant reductions to sell.

Why Pollutant Trading: Nonpoint Source View

- Nonpoint sources can:
  - Bring cost effective reductions to market
  - Potentially help meet estimated demand for phosphorus reductions
- Pollutant trading could provide financial resources for NPS management practices

Conditions Necessary for Trading

- Market Driver
- Cost Differential
- Ability
- Opportunity

Market Driver

- A regulatory requirement that sets a limit on effluent discharges (e.g., a TMDL)
- A defined “market area”
- A defined “commodity”

Cost Differential - financial incentive

- **Participant A**
  - Limit 100 lbs/day
  - Actual 200 lbs/day
  - Cost $100 lb/yr

  Need to reduce 100 lbs
  Willing to pay $50 lbs/yr

  Benefit
  - Cost w/o trading:$10,000
    $100 x 100 lbs
  - Cost w/ trading: $5,000
    $50 x 100 lbs

- **Participant B**
  - Limit 500 lbs/day
  - Actual 600 lbs/day
  - Cost $10 lb/yr

  Need to reduce 100 lbs
  Can reduce 200 lbs/day

  Benefit
  - Cost w/o trading:$1,000
    $10 x 100 lbs
  - Profit w/ trading: $3,000
    ($50 x 100 lbs) revenue
    minus ($10 x 200 lbs) cost

Ability to Trade

- Can the seller deliver measurable reductions with certainty?
  - Technically feasible & adequate supply
  - Effectiveness of control measures
    - How much pollutant reduction- measurable
    - How long to see results - verifiable
  - Environmentally equivalent reductions
    - Location in the watershed
    - Seasonal load reductions

Opportunity - Tools of Trading

- Trading should be business transaction
  - Ass'n conducts the 'business' of trading
    - Match trading parties
    - Track trades
  - Agencies monitor ambient water quality and conduct periodic audits
  - Dynamic trading
    - Credits transferable
    - Trading 'as needed'

Kinds of Trading

- Intra-plant
- Pre-treatment
- Point-source to point-source
- Point-source to nonpoint-source
- Nonpoint to nonpoint

EPA's Draft Guidance

- "Draft Framework for Watershed-Based Trading" issued May 1996
- Four main requirements for trading:
  - Technology-based standards and water quality standards must be met, using permits for point sources
  - Trading must be conducted within watershed boundaries
  - No adverse environmental impacts, must monitor water quality
  - No toxics trading or inter-pollutant trading
- Text, comments on EPA website:
  - http://www.epa.gov/OWOW/watershed/trading.htm

Effluent Trading Examples

- Tar-Pamlico, NC
  - Group limit for Basin Association members
  - Payment to NC Dept. of Agriculture for Non-Point Source reductions
- Rahr Malting, MN
  - Permit allows for discharge in exchange for specified up-stream Non-Point Source reductions
- Cherry Creek, CO
  - Local WQ authority administers Non-Point Source projects and sells credits to Point Sources to comply with discharge limit.

Conditions - successful trading

- TMDL in process, allows time for trading design, coordination
- Well-organized, supportive Watershed Advisory Group in place
- Strong potential for trading, such as a nutrient
- Contribution split between point and nonpoint sources
- Many participants & potential partners
- Economic conditions & regulatory drivers

Boise River Demonstration Project Regulatory Drivers

- Lower Boise River TMDL
- Snake River and Hells Canyon TMDLs

Boise River Characteristics

- Many particpants - leadership from point sources
- Cost differential
- PS buys credits from NPS - private contract
- Liability remains with point source
- Establishes specific BMPs for NPS
- Location-based ratios applied
- Robust participation by agriculture

What are the implementation mechanisms?

- TMDL
- Permits
- Trading rules

TMDL mechanisms

- Authorizes trading
- Establishes point source waste load allocations & nonpoint load allocations
- requires trades to meet reasonable assurance

Permit Mechanisms: Authorization & Limits on Trading

- Variable permit limits
- Point sources liable for trade performance
- Limits on trading to prevent local impacts
- Reporting on DMR
  - Addition of two lines for reporting trades
  - Monthly Trade Summary provides watershed-wide reconciliation
- Permit Audits
  - Standard permit audits
  - SCC helps EPA, DEQ with NPS on-site project reviews

Permit Mechanisms: Trade Execution & Tracking

- Trade Notification Forms:
  - Transfers credits from seller to buyer
- Reduction Credit Certificates:
  - Certifies nonpoint source reductions
- Trade Tracking Database:
  - Records all trade transactions
- Monthly Trade Summary:
  - Ensures watershed-wide trade reconciliation
- Trade Tracking Audits

Trading Rules: Nonpoint Source Mechanisms

- Nonpoint source trades limited to practices on BMP List
- Nonpoint source baseline = TMDL load allocation
- Water Quality Contribution required from each NPS credit
  - at full phase-in, credits only created by reductions exceeding TMDL Implementation Plan
- Process for Adding New BMPs

Trading Rules: Nonpoint Source Mechanisms

- **Measured Credits**
  - Monitoring
  - Minimum design, construction and O&M requirements
- **Calculated Credits**
  - Monitoring
  - Design, construction, and O&M requirements
  - Credit calculation
  - Uncertainty discount

Trading Rules: Water Quality Protection

- Ratios apply to credit calculations to ensure equivalent reductions (Parma Pounds)
  - *River Location Ratios:* transmission losses in the Boise River
  - *Drainage Delivery Ratios:* transmission losses within a subwatershed
  - *Site Location Factors:* potential for water re-use
- Market places high value on high quality reductions

Washington Pilot

- **Explore** opportunities to implement TMDLs
- **Develop** experience in effluent trading
- **Need** for tool when permitting Q's to listed waters
- **Develop** guidance on how to apply in appropriate places around the state

Approach

- **Phase 1** - Identify pilot basin based on criteria
- **Phase 2** - Work w/stakeholders to design trading rules
- **Phase 3** - Implement effluent trading pilot
- **Phase 4** - Evaluate successes for use elsewhere in the state

Criteria for Pilot Selection

- Is there a **TMDL** nearly complete, completed or nearing an apppropriate point in the process?
- Does the **pollutant** & associated **sources** in the TMDL basin appropriate for trading?
- Is there a strong group of **stakeholders** that would support trading?

Criteria (con’t)

- Are **economic** conditions that would lend itself to trading (ie. # of sources, costs of compliance)?
- Are there **DOT** projects that may benefit?
- Is there **funding** to support the pilot basin?

Timelines

- **Phase 1** - 3 to 6 months to choose pilot basin
- **Phase 2** - 18 months to do economic study and facilitate design of trading rules
- **Phase 3** - implementation of trading
- **Phase 4** - within 6 months of implementation, evaluate pilot

Questions & Suggestions

- ????